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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MEINECKE DIAZ, SUSANNA M

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,827

Applicant(s)

KAKIHARA ET AL.

Examiner

Susanna M. Diaz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-22 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 10, 11 and 33 is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 22.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This Final Office action is responsive to Applicant's amendment filed January 12, 2004.

Claims 1, 12, 14, 21, and 33 have been amended.

Claims 1-8, 10-22, and 33 are pending.

2. The previously pending objection to the specification is withdrawn in response to Applicant's amendment of the title.

The previously pending rejection under 35 U.S.C. § 112, 2nd paragraph is withdrawn in response to Applicant's arguments.

Claim Objections

3. Claim 12 is objected to because of the following informalities:

Claim 12, lines 10-11, delete "map information", insert --the predetermined map information-- in order to provide proper antecedent basis.

Appropriate correction is required.

Response to Arguments

4. Applicant's arguments with respect to claims 12-22 have been considered but are moot in view of the new ground(s) of rejection.

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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 12 and 14-22 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Westerlage et al. (U.S. Patent No. 5,694,322).

Westerlage discloses a charging device which charges based on map information without local infrastructure, the charging device comprising:

[Claim 12] host moving body position detecting means for detecting a position of a host moving body (col. 4, lines 7-29);

storage means for storing data useful for determining charges to be rendered including predetermined map information, charge applicable areas, buffer areas, which are defined by a first boundary line of a charge applicable area and a second boundary line around the first boundary line, located adjacent to charge applicable areas and areas other than the charge applicable areas or between different charge applicable areas (Figs. 1-5; col. 3, lines 20-22; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60 -- Each region may contain toll and non-toll road designations. A region with non-toll roads would be indicative of a buffer area;

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therefore, in Fig. 5 for example, if the squares labeled as B and D are toll areas and the squares labeled as C are non-toll areas, then cumulative area C acts as a buffer area for charge applicable areas B and D. Furthermore, it should be noted that cumulative area C is adjacent to both the boundaries of cumulative area B as well as cumulative area D and, therefore, cumulative area C is seen as defining a second boundary line around both the first boundary line of cumulative area B as well as the first boundary line of cumulative area D);

determining means for receiving position information and relating it to map information, and for determining whether or not the moving body has at least entered one of the charge applicable area and the buffer area (Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60 -- Each region may contain toll and non-toll road designations. A region with non-toll roads would be indicative of a buffer area); and

charge processing means for performing charge processing for a host moving body relating to the charge applicable area based on a result of a determination by the determining means (Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60).

Westerlage discloses a charging device which charges based on map information without local infrastructure, the charging device comprising:

[Claim 14] detecting means for detecting position information defining the position of a moving body (col. 4, lines 7-29);

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adding means for defining a buffer area, which is defined by a first boundary line of a charge applicable area and a second boundary line around the first boundary line, in which a moving body may be expected to move to from a detected position based on position information concerning the detected moving body, and adding a predetermined area to the position information (Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60 -- Please note that Westerlage's inertial navigation system and dead reckoning system, discussed in col. 4, lines 22-29, contribute to the detection of position information and determine a moving vehicle's current position based on the direction "in which a moving body may be expected to move to from a detected position based on position information concerning the detected moving body, and adding a predetermined area to the position information." The area of expected movement can be viewed as a buffer area that is adjacent to and located around the charge applicable area);

deciding means for identifying charge applicable areas based on predetermined map information, for matching the position information to the map information, and for deciding an entry state indicating whether or not the moving body has at least entered a charge applicable area based on the charge applicable areas and the buffer area (Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60 -- Please note that Westerlage's inertial navigation system and dead reckoning system, discussed in col. 4, lines 22-29, contribute to the detection of position information and determine a moving vehicle's current position based on the direction "in which a moving body may be expected to

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move to from a detected position based on position information concerning the detected moving body, and adding a predetermined area to the position information." The area of expected movement can be viewed as a buffer area that is adjacent to and located around the charge applicable area. Also, it should be recognized that the claim language does not specify any difference between how charging occurs in the charge applicable areas versus in the buffer areas); and

generating means for generating charge information based on a result of a decision by the deciding means (Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

wherein said buffer area is located adjacent to the charge applicable area (Please note that Westerlage's inertial navigation system and dead reckoning system, discussed in col. 4, lines 22-29, contribute to the detection of position information and determine a moving vehicle's current position based on the direction "in which a moving body may be expected to move to from a detected position based on position information concerning the detected moving body, and adding a predetermined area to the position information." The area of expected movement can be viewed as a buffer area that is adjacent to and located around the charge applicable area);

[Claim 15] wherein the generating means is provided with storage means in which toll data that is determined in advance and corresponds to the entry state is stored in advance, and the charge information is generated using toll data of the storage means

(Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

[Claim 16] wherein the detecting means detects position information concerning a moving body based on satellite data from a position finding satellite (col. 4, lines 7-29);

[Claim 17] wherein the adding means sets the size of the expected area of movement based on a detection error by the detecting means (Please note that Westerlage's inertial navigation system and dead reckoning system, discussed in col. 4, lines 22-29, contribute to the detection of position information and determine a moving vehicle's current position based on the direction "in which a moving body may be expected to move to from a detected position based on position information concerning the detected moving body, and adding a predetermined area to the position information," "wherein the adding means sets the size of the expected area of movement based on a detection area by the detecting means");

[Claim 18] wherein the detecting means includes estimating means for estimated position information concerning a moving body based on at least one of a direction in which the moving body is traveling and a distance traveled by the moving body information (col. 4, lines 7-29 – Inertial navigation and dead reckoning are techniques for estimating the expected position of a moving body based on a last known position and details of direction and velocity of travel at that last known position);

[Claim 19] wherein the adding means sets the size of the expected area of movement based on at least one of a direction in which the moving body is traveling and a distance traveled by the moving body used in the estimating means (col. 4, lines

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7-29 – Inertial navigation and dead reckoning are techniques for estimating the expected position of a moving body based on a last known position and details of direction and velocity of travel at that last known position);

[Claim 20] wherein the generating means generates charge information relating to tolls determined based on a distance traveled in the charge applicable area (Figs. 1-5; col. 3, lines 20-22; col. 4, lines 7-29; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60).

[Claims 21-22] Claims 21 and 22 recite limitations already addressed by the rejections of claims 12 and 14-20 above; therefore, the same rejections apply.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Westerlage et al. (U.S. Patent No. 5,694,322), as applied to claim 12 above.

[Claim 13] Westerlage teaches that toll payments are made “through any suitable electronic funds transfer technology, such as the electronic data interchange (EDI)” (col. 7, lines 7-8), yet Westerlage fails to explicitly teach the use of an IC card for making toll payments. However, Official Notice is taken that the use of IC cards to make toll

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payments is old and well-known in the art of toll processing. IC cards provide for a convenient and secure way of transferring funds, especially in a wireless payment system. Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize an IC card as part of Westerlage's invention to store a user's balance information in order to provide for a convenient and secure way of storing and transferring funds wirelessly while minimizing susceptibility to damage or fraudulent accounting activity.

Allowable Subject Matter

9. Claims 1-8, 10, 11, and 33 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter:

The closest prior art of record are the following references: Widl (U.S. Patent No. 5,721,678); Westerlage et al. (U.S. Patent No. 5,694,322); and Sakurai et al. (U.S. Patent No. 5,675,494).

Widl discloses a use billing system in which vehicle movement is tracked by GPS (Global Positioning System). This tracked movement is assessed to determine whether or not a vehicle has entered a toll zone in order to calculate any accumulated tolls accordingly. However, Widl merely differentiates between a toll and a non-toll zone; Widl does not expressly make any concessions for a moving body which has moved from a charge applicable area to a buffer area and then back to the same charge area again such that "an entry into the charge applicable area is prohibited in the generating



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means" (i.e., double billing is prevented when a moving body exits a charge applicable area to a buffer area and subsequently reenters the same charge applicable area). In Widl's invention, a vehicle that exits and subsequently reenters a toll area would be charged for both an exit and an additional reentry fee. In other words, double billing is not expressly prevented.

Westerlage too tracks a vehicle's movement throughout various "taxing regions" and accumulates charges for all regions accordingly. However, Westerlage's assessment of charges is based on a distance traveled through each taxing region. There is no mention of prevention of double billing, especially since entry and exit points are not of issue due to the map matching technique utilized by Westerlage to correlate the vehicle's GPS determined position to the mapped taxing regions.

Sakurai is directed toward a toll collection system that prevents double toll charging; however, double toll charging (i.e., double billing) is prevented "for a predetermined period of time after the vehicle leaves the toll chargeable area" (col. 8, lines 9-10). Instead, the claimed invention prevents double billing based on predetermined map information that explicitly differentiates charge applicable from buffer areas and a determination that a moving body moved from a charge applicable area to a buffer area and then back to the same charge applicable area. There is no time element involved in the prevention of double billing in the claimed invention nor is there any assessment of predetermined map information and a moving body's passing through a predetermined "buffer area" as a condition to prevent double billing in Sakurai.

In summary, claims 1-8, 10, 11, and 33 are deemed to be allowable over the prior art of record because the prior art of record is not seen, either alone or in combination, as teaching or suggesting a charging device which comprises means for detecting the position of a moving body, means for determining a charge applicable area in a predetermined map and for determining a buffer area (which is defined by a first boundary line of a charge applicable area and a second boundary line around the first boundary line and is located adjacent to the charge applicable area and an area other than the charge applicable area), ***means for deciding whether the moving body has entered into the charge applicable area or the buffer area by matching the map information with the position information***, and means for generating charge information based on the result of the decision by the deciding means, such that, ***when a history of the entry state is one in which the moves body moves from the charge applicable area to the buffer area and then back to the same charge applicable area again, generating of charge information relating to an entry into the charge applicable area is prohibited in the generating means***. More particularly, it is the combination of the details of how double billing is prevented in the claimed moving vehicle charging system (i.e., by comparing the moving body's actual position to charge applicable areas and buffer areas identified in predetermined map information and preventing double billing when the moving body leaves a charge applicable area, enters a buffer area, and then reenters the same charge applicable area) that makes the claimed invention allowable over the prior art of record. The details addressing this allowable feature are recited in claims 1-8, 10, 11, and 33.

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Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (703) 305-1337. The examiner can normally be reached on Monday-Friday, 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (703) 305-9643.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Receptionist whose telephone number is (703)308-1113.

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Any response to this action should be mailed to:

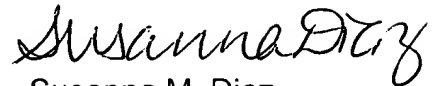
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(703)746-7048 [Informal/Draft communications, labeled
"PROPOSED" or "DRAFT"]

Hand delivered responses should be brought to Crystal Park 5, 2451 Crystal Drive, Arlington, VA, 22202, 7th floor receptionist.



Susanna M. Diaz
Primary Examiner
Art Unit 3623
March 8, 2004